

1 **CLAIMS**

2 What is claimed is:

3 1. An apparatus for treating metal working fluid, comprising:  
4 a heating vessel for receiving and holding metal-working fluid for treatment;  
5 a heater for heating the metal-working fluid in the heating vessel;  
6 an agitator for agitating the metal-working fluid within the heating vessel;  
7 an aerator for aerating the metal-working fluid within the heating vessel;  
8 a holding vessel for receiving and holding treated metal-working fluid from the  
9 heating vessel; and  
10 a de-mister,  
11 wherein:  
12 the agitator and aerator comprise an air flow source and air inlets provided in a  
13 bottom portion of the heating vessel so that air flow through the inlets and  
14 through the metal-working fluid agitates and aerates the metal-working fluid;  
15 and  
16 the air flow through the metal-working fluid flows out of the heating vessel through  
17 the de-mister.

18 2. The apparatus of Claim 1, wherein the de-mister comprises a centrifuge impactor.

19 3. An apparatus for treating metal working fluid, comprising:  
20 a heating vessel for receiving and holding metal-working fluid for treatment;  
21 a heater for heating the metal-working fluid in the heating vessel;  
22 an agitator for agitating the metal-working fluid within the heating vessel;  
23 an aerator for aerating the metal-working fluid within the heating vessel;  
24 a holding vessel for receiving and holding treated metal-working fluid from the  
25 heating vessel; and  
26 a filter,  
27 wherein:  
28 the agitator and aerator comprise an air flow source and air inlets provided in a  
29 bottom portion of the heating vessel so that air flow through the inlets and

1       through the metal-working fluid agitates and aerates the metal-working fluid;  
2       and  
3       the air flow through the metal-working fluid flows out of the heating vessel through  
4       the filter.

5     4. The apparatus of Claim 3, wherein the filter comprises a charcoal filter.

6     5. An apparatus for treating metal working fluid, comprising:  
7       a heating vessel for receiving and holding metal-working fluid for treatment;  
8       a heater for heating the metal-working fluid in the heating vessel;  
9       an agitator for agitating the metal-working fluid within the heating vessel;  
10      an aerator for aerating the metal-working fluid within the heating vessel;  
11      a holding vessel for receiving and holding treated metal-working fluid from the  
12       heating vessel; and  
13      an ion-exchange filter connected to at least one of the heating vessel and the  
14       holding vessel for reducing a concentration in the metal-working fluid of at least  
15       one metal,

16    6. The apparatus of Claim 5, wherein one of the at least one metal is cobalt.

17    7. The apparatus of Claim 5, wherein the ion-exchange filter includes a sulfonated  
18       divinyl-benzene-cross-linked polystyrene ion-exchange resin.

19    8. The apparatus of Claim 5, wherein the ion exchange filter is connected to the  
20       holding vessel so as to enable recirculation of metal-working fluid from the holding  
21       vessel through the ion-exchange filter.